

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
30 September 2004 (30.09.2004)

PCT

(10) International Publication Number  
**WO 2004/082519 A3**

(51) International Patent Classification<sup>7</sup>: **A61F 2/64, 2/68**

(21) International Application Number:  
PCT/GB2004/001067

(22) International Filing Date: 12 March 2004 (12.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0306434.2 20 March 2003 (20.03.2003) GB

(71) Applicant (for all designated States except US): **CHAS A. BLATCHFORD & SONS LIMITED** [GB/GB]; Lister Road, Basingstoke, Hampshire RG22 4AH (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **LANG, Steven** [GB/GB]; 31 Highmead, Fareham, Hampshire PO15 6BK (GB).

(74) Agents: **BLATCHFORD, William, Michael et al.**; Withers & Rogers, Goldings House, 2 Hays Lane, London SE1 2HW (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

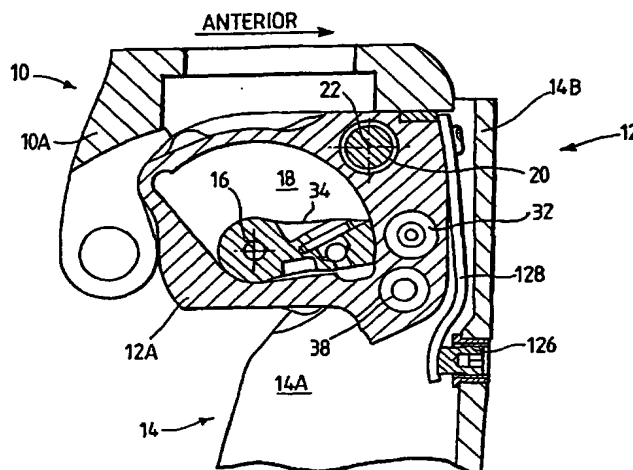
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: **PROSTHETIC KNEE JOINT MECHANISM**



(57) Abstract: A prosthetic knee joint mechanism has an hydraulic load-activated knee-stabilizing device for resisting joint flexion. A rotary piston (34) connected to one part of the mechanism is rotatable within a fluid-filled fluid displacement chamber (18) associated with another part of the mechanism to drive fluid through a fluid passage which contains a main valve (38) which restricts or allows joint flexion according to the position of a valve member within the valve. The valve member is movable towards an open position in response to fluid pressure in the fluid passage upstream of the valve member caused by application of a flexion torque to the knee joint mechanism, movement of the valve member in the direction of the open position being at least resisted by a valve control arrangement actuated by application of the wearer's weight. The weight-responsive valve control arrangement is preferably a weight-responsive pilot valve (32) for hydraulically resisting movement of the valve member of the main valve.

WO 2004/082519 A3



**(88) Date of publication of the international search report:**  
23 December 2004

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

In ...-nal Application No  
PCT/GB2004/001067

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 A61F2/64 A61F2/68

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 A61F F16K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 93 20 853 U (BOCK ORTHOPAED IND) 16 March 1995 (1995-03-16)	1,2, 13-18, 22,27,28
Y	pages 4-7; claims; figures 2,4-6	3,5-11, 19-21, 23-26
A	-& CA 2 134 999 A 16 May 1995 (1995-05-16) cited in the application	1-28
A	US 6 113 642 A (GRUESBECK WILLIAM G ET AL) 5 September 2000 (2000-09-05)	1,2,4, 12-18, 22,27,28
Y	column 6, line 40 - column 9, line 9  column 20, line 20 - column 21, line 11 claims; figures 2-7,14,28  ----- -/--	3,5-11, 19-21, 23-26

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*&\* document member of the same patent family

Date of the actual completion of the international search

16 September 2004

Date of mailing of the international search report

11/10/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Kuehne, H-C

## INTERNATIONAL SEARCH REPORT

Int l Application No  
PCT/GB2004/001067

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 2004/045470 A (NABCO LTD) 3 June 2004 (2004-06-03) claims; figures -----	1-28
A	DE 195 06 426 C (BOCK ORTHOPAED IND) 28 November 1996 (1996-11-28) column 2, line 63 - column 4, line 47 claims; figures -----	1-28
A	US 2 667 644 A (JOHNSON ORVIN S) 2 February 1954 (1954-02-02) column 5, line 58 - column 6, line 29 column 8, line 30 - line 61 claims; figures 1,2,7,8 -----	1-28
A	EP 1 106 884 A (HOERBIGER HYDRAULIK) 13 June 2001 (2001-06-13) claims; figures -----	1-28

## INTERNATIONAL SEARCH REPORT

Int'l Application No  
PCT/GB2004/001067

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 9320853	U	16-03-1995	DE 4338946 C1	24-05-1995
			DE 9320853 U1	16-03-1995
			BR 9404455 A	20-06-1995
			CA 2134999 A1	16-05-1995
			CN 1106648 A ,B	16-08-1995
			DE 59408726 D1	14-10-1999
			EP 0654254 A1	24-05-1995
			ES 2138023 T3	01-01-2000
			JP 7250852 A	03-10-1995
			RU 2112465 C1	10-06-1998
			TR 27842 A	31-08-1995
			ZA 9409064 A	20-07-1995
CA 2134999	A	16-05-1995	DE 4338946 C1	24-05-1995
			BR 9404455 A	20-06-1995
			CA 2134999 A1	16-05-1995
			CN 1106648 A ,B	16-08-1995
			DE 9320853 U1	16-03-1995
			DE 59408726 D1	14-10-1999
			EP 0654254 A1	24-05-1995
			ES 2138023 T3	01-01-2000
			JP 7250852 A	03-10-1995
			RU 2112465 C1	10-06-1998
			TR 27842 A	31-08-1995
			ZA 9409064 A	20-07-1995
US 6113642	A	05-09-2000	US 5888212 A	30-03-1999
			CA 2232512 A1	16-08-1998
WO 2004045470	A	03-06-2004	JP 2004167106 A	17-06-2004
			JP 2004167107 A	17-06-2004
			WO 2004045470 A1	03-06-2004
DE 19506426	C	28-11-1996	DE 19506426 C1	28-11-1996
			AT 192317 T	15-05-2000
			AU 692050 B2	28-05-1998
			AU 4567196 A	05-09-1996
			BR 9600820 A	23-12-1997
			CA 2170172 A1	25-08-1996
			CN 1141157 A ,B	29-01-1997
			DE 29521139 U1	29-08-1996
			DE 59605084 D1	08-06-2000
			EP 0728451 A1	28-08-1996
			ES 2147869 T3	01-10-2000
			JP 3504798 B2	08-03-2004
			JP 8317944 A	03-12-1996
			PL 312866 A1	02-09-1996
			RU 2141290 C1	20-11-1999
			TR 960837 A2	21-10-1996
			US 5704945 A	06-01-1998
			ZA 9601420 A	27-08-1996
US 2667644	A	02-02-1954	US 2638605 A	19-05-1953
EP 1106884	A	13-06-2001	AT 408480 B	27-12-2001
			AT 206299 A	15-04-2001
			EP 1106884 A2	13-06-2001